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ABSTRACT

In May of 1970, a 1-week workshop brought together vocational educators, information science experts, and specialists in planned educational change for the purpose of developing models of information systems designed to utilize research and development information in bringing about innovations designed to facilitate vocational-technical education in rural areas. The activity was 1 of 7 coordinated inservice institutes conducted during 1970 for vocational education and related personnel from rural areas throughout the United States. Major problems with which the institute dealt related to transfer and utilization of information to bring about changes in instructional programs. Through use of various approaches, the steps in the educational change process were illustrated and simulated during the workshop experience. Three small groups worked together to apply the concepts and approaches presented and developed by the consultants, interpreters, and participants. The work of these groups resulted in 3 planned strategies designed to bring about educational change in different problem areas facing occupational education in rural areas. (JH)

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FINAL REPORT

Institute V

Project No. 9-0472

Grant No. OEG-0-9-430472-4133(725)

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RURAL AREA APPLICATION OF VOCATIONAL EDUCATION INNOVATIONS RESULTING FROM RESEARCH AND DEVELOPMENT PROGRAMS

Part of
National Inservice Training Multiple Institutes
for Vocational and Related Personnel
in Rural Areas

DOUGLAS C. TOWNE

Center for Occupational Education
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Raleigh, North Carolina 27607

December 1970

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In addition, thanks are extended to David Althus and Robert C. Evans for their assistance in conducting the searches of ERIC materials. The interpreters or other participants assisting in special ways were Dr. David C. Bjorkquist, Dr. John A. Klit, Roland J. Krogstad, Dr. Robert G. Meisner, George P. Pilant, Dr. Charles Rogers, Dr. Jay Smink, Glenn Smith, John Stephens, Dr. John Rodgers and Paul J. Foster. Their assistance was greatly appreciated.

The administration of an institute of this nature cannot be accomplished without the assistance of certain key people. Deep appreciation is expressed to Miss Fanchon F. Funk for her diligence and many hours of work as assistant director. Mrs. Donna Williams and Mrs. Carolyn Miller provided the secretarial assistance so critical to the smooth functioning of any workshop.

SUMMARY

GRANT NO.: OEG-0-9-430472-4133(725)

TITLE: Rural Area Application of Vocational Education Innovations Resulting from Research and Development Programs

PROJECT DIRECTOR: Douglas C. Towne, Consultant

INSTITUTION: North Carolina State University at Raleigh

TRAINING PERIOD: May 3-8, 1970

In May of 1970 a one-week workshop was conducted which brought together vocational educators, information science experts and specialists in planned educational change for the purpose of developing models of information systems designed to utilize research and development information in bringing about innovations designed to facilitate vocational-technical education in rural areas. The activity was one of seven coordinated inservice institutes conducted during 1970 for vocational education and related personnel from rural areas throughout the United States.

Problem and Objectives

The utilization of research and development information in designing programs for education is a common problem. The area of occupational education in the rural regions of the United States is an especially difficult problem. The purpose of the institute described herein was to explore and develop models for implementing occupational education change through utilization of research and development information. The objectives were process oriented rather than product oriented, and simulation was utilized to provide participants with surrogate experiences in the change process. The major problems with which the institute dealt related to the transfer and utilization of information to bring about changes in instructional programs.

Procedures and Activities

The basic concept utilized in this workshop was to bring experts in vocational-technical education from rural areas together with experts in the areas of information sciences, educational change and educational simulation. The participants and consultants were brought together at the University of Pittsburgh during the first week of May 1970. Utilizing the works of Havelock, Kent and Williams, simulation exercises were designed to provide experiences for the participants in utilizing consultants in (1) the process of devising strategies for need clarification, (2) describing processes of identifying needed changes, (3) describing rationale for locating potential sources of solutions, (4) describing relevant research strategies, (5) describing methods of evaluating information

obtained, (6) describing methods of solution fabrication and feedback, (7) devising and describing methods of implementation and (8) devising and describing methods of monitoring. Through the use of various approaches, the steps in the education change process were illustrated and simulated during the workshop experience.

The participants were requested to conduct searches of relevant information services prior to attending the conference. These searches were utilized during the conference to facilitate additional searches of the ERIC system. Additional preinstitute activities involved the reading of relevant materials by both consultants and participants.

The activities of the workshop itself were highly interactive and quite flexible. The consultants were involved full-time during the week as were selected participant interpreters who were utilized to facilitate interaction and flexibility.

The last major activity of the workshop consisted of three small groups working together to apply the concepts and approaches presented and developed by the consultants, interpreters and participants. The work of these groups resulted in three planned strategies designed to bring about educational change in different problem areas facing occupational education in rural areas.

Outcomes and Recommendations

The major outcome of this workshop was the development of the participants in the areas of information science, educational change and educational simulation. A by-product was the development of the three models for implementing specific change. Another major by-product was the interpretation of Havelock's works as it applies to vocational-technical education in rural areas.

Though this workshop had strong and weak points the overall recommendation is that such activities need to be conducted to a much greater extent than they presently are. With the diversity of participants included in this workshop, it was found that each person gained something from the workshop, and they should be able to utilize this knowledge or skill in their everyday working situation. The diversity of participants also indicated that several had had the opportunity of learning within these areas prior to attending the conference, but many more were acquainted for the first time with many of the concepts and approaches presented. It seemed very obvious that the participants from local educational agencies had not been exposed to these types of activities prior to the conference. This indicates that many more conferences of this nature could well be justified at the local educational agency level.

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I. PURPOSE AND OBJECTIVES

The pace of change is quickening. On this point there is little disagreement. The result of change is another question. Change for the sake of change has little justification. The question really becomes whether the change is a change for the better.

The goal, then, should be to facilitate valid change, and not just mere change. The probability that change will be valid can be increased greatly if the process of planning change is based upon the most accurate and valid information and knowledge available. Having arrived at this conclusion, the logical question to follow are:

1. What relevant, accurate information and knowledge is available and how does one identify and obtain it?

2. Once in hand, how is this information put to use in a way that valid change results?

These two questions, or answering them, provided the central focus for Institute V.

Looking at the first question, one sees ready evidence of the explosive growth information. Likewise, there have been giant strides in developing new ways and means of identifying and obtaining the information through such services as ERIC (Educational Resources Information Centers), RISE (Research and Information Services for Education), and SRIS (School Research Information Service). Increasing educators' familiarity with the kind of information available, and where and how it is available, is the first step to valid change.

The second step is more difficult. New ways and means must be found to process and utilize this information. To accomplish this, Institute V brought researchers and practitioners from vocational education together with researchers from the fields of educational change, information science, and simulation. They spent a week developing and applying models for utilizing information and data to plan valid change.

In other words, the Institute was concerned primarily with the process of change, rather than the product of change. This is illustrated by the following list. In the left column are products, or results. In the right column are process objectives for reaching that result.

Product	Process
1. Describe the needs of a specific client group.	Devise and state the strategy of need clarification.
2. List changes needed on the part of clients in improving their role performance.	Describe process of identifying needed changes.

3. Select sources of information with potential solutions.	Describe rationale for locating potential sources of solutions.
4. Exploit, i.e., utilize, the information systems.	Describe relevant research strategies.
5. Interpret applicability of identified information resources.	Describe method of evaluating information obtained.
6. Fabricate a solution to the stated needs.	Describe methods of solution fabrication and feedback.
7. Implement fabricated solution.	Devise and describe methods of implementation.
8. Stabilize innovation.	Devise and describe methods of monitoring.

The process objectives in the right column thus become the major elements of a model for achieving valid change. Presentations, discussion, and work sessions during the Institute focused on understanding and applying these processes.

II. METHODS AND PROCEDURES

The methods and procedures adopted for the Institute were designed to facilitate and assist each participant (or team of participants) to create a model (described in both heuristic and narrative terms) which demonstrated the process of initiating reasoned, planned changes for the home setting.

A basic rationale was to provide extended exposure and involvement of all individuals. Three types of participants were involved.[1]

1. Three resource people, experts in information utilization, simulation and education change were:

   Dr. Ronald Havelock, Project Director, Center for Research on Utilization of Scientific Knowledge, University of Michigan

   Dr. Allen Kent, Director, Knowledge Availability Systems Center, University of Pittsburgh

   Dr. Clarence Williams, formerly Chairman, National Conference on Visual Literacy, University of Rochester

A primary criterion in selecting resource people was their ability to communicate their expert knowledge to others. They spent the entire week with the Institute participants.

2. Practitioner experts in occupational education from rural areas were the major participants.

3. Of these participants several interpreters familiar with both areas of expertise (information and change) were used to facilitate personal interaction and involvement. Their task was to enhance communications between all participants and the resource persons. They assisted in the direction of the Institute by interpreting the needs of other participants to the resource persons and in turn interpreting the advice of the resource persons to other participants.

While the emphasis was on the process of change, it was necessary to apply steps in the process to specific innovations to capitalize upon the "learning by doing" approach. This was accomplished through simulation-type experiences. At various times, steps in the process were illustrated through simulated activities such as role playing, problem clarification and information retrieval.

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[1]The method by which participants were selected is described in detail in Appendix C, page 50.

Finally, the participants were organized into three separate groups to simulate the entire model, with each group concentrating on a different innovation. The entire activity was designed to develop each participant's ability to implement educational change through appropriate utilization of information. The operation of the Institute itself was analogous to a client group utilizing the services of consultants in solving a problem.

Preinstitute Activities

Prior to the Institute, the client participants were asked to carry out a self-directed simulation exercise. Each was requested to identify a specific problem or need in his own state. Then he was asked to select a source which he thought would provide useful information for solving the problem. Their letters and results of their requests for information were submitted to the Institute director and served as the "jumping off point" for Institute activities. In addition, the problems were used to develop simulation exercises for the Institute.

Following are the problems used by participants for the preinstitute exercise and the information source which was consulted.

Information sought from Educational Resources Information Centers (ERIC):

1. A problem of critical concern is the provision of information to students about occupations in many rural areas. It would appear that young people are not exposed to very many occupations. (Counseling and Personnel Services ERIC Center)

2. We are particularly interested in adding to our curriculum a course in English or a general course in communications designed especially for vocational students whose Intelligence Quotients range from 80 to 100. We find that our traditional English classes are not meeting many needs of these students. All come from low-income homes, and many are of minority groups. (Teaching of English ERIC Center)

3. We are interested in information on establishing a high school cooperative vocational educational program for health occupations and in providing a day care center to give students experience in child care. (Vocational and Technical Education ERIC Center)

4. I am making an effort to become acquainted with research and innovative programs of vocational guidance for rural youth. (Vocational and Technical Education, Rural Education and Small Schools, and Counseling and Personnel Services ERIC Centers)

5. We are gathering information on summer programs in vocational and technical education in rural areas of the United States. The school district of which I am chief administrator is rural in nature and up to this time has never had a summer program of any type. (Vocational and Technical Education ERIC Center)

6. The school system of which I am the chief administrator is rural in nature and for the first time will attempt to implement a summer program in the area of vo-tech education. I address this letter to your center for some ideas, help and any other information you might have with concern to the types of programs instituted in the vo-tech area in rural communities of the United States. We would also like information on the steps taken with regard to the change process in communities where this type of program has taken place. (Rural Education and Small Schools ERIC Center)

7. Our service has the responsibility of designing programs in business and office occupations education for the disadvantaged--urban and rural. We will want our instructional programs to involve students at the junior and senior high school levels. (Disadvantaged, Vocational and Technical Education, Counseling and Personnel Services, and Adult Education ERIC Centers)

8. I would appreciate it very much if you would send me any current educational research and research related materials concerning "Rural Area Applications of Vocational Education Innovations Resulting from Research and Development Programs." (Disadvantaged, Vocational and Technical Education, Counseling and Personnel Services, and Adult Education ERIC Centers)

9. Although diversity characterizes the middle grades projects (occupational education programs conducted by 21 local administrative units in the state), the objective of integrating occupational and general education is a common element. More specifically, selected English, math, social science, and occupational teachers are expected to work as a team in providing occupational information to students and in relating the students' activities to the world of work. Special training for teachers assuming these roles will be provided primarily through inservice rather than preservice education. In order to perform effectively, teachers involved in the middle grades projects must include "subject matter specialist" and "occupational exploration team member" in their role perceptions. What evidence is available which demonstrates that learning experiences provided for teachers have contributed to expanding their role perceptions to include "team member who assists students in occupational exploration?" Are there programs in existence through which a team of teachers has successfully integrated instruction in general and occupational education? (Vocational and Technical Education, and Teacher Education ERIC Centers)

10. We hear the word <u>disadvantaged</u> used frequently in conjunction with today's social, educational, economic and health problems. I would like to understand to whom we are referring when we speak of the disadvantaged and the problems of the disadvantaged. I would certainly appreciate receiving research-related materials dealing with this problem area. (Disadvantaged ERIC Center)

11. We are seeking specifically research information on projects which were aimed at curriculum development and inservice training for teachers toward the final outcome of integrating academic curricula and vocational technical curricula. We are also interested in preparing teachers to make a transition from the old teaching philosophy to the more broad philosophy of making education as relevant to those students who do not plan college careers as the college preparatory system is to those students who do plan college careers. In short, we are seeking resource materials for integrating vocational and academic curricula. (Vocational and Technical Education ERIC Center)

12. I am particularly interested in career development models which are exemplary in nature and which are considered to be at the developmental stage of refinement. (Counseling and Personnel Services ERIC Center)

13. First, I have come across two methods of allocating time on the job and time in school in a cooperative program. In one, the cooperative student spends two weeks full-time on the job followed by two weeks full-time in school. In the second the student attends school half a day, and goes to work half a day. Has a study been made on the relative effectiveness of these two methods of student orientation to the world of work? My second question has to do with the effectiveness of a two-year cooperative program, starting in the junior year of high school. Almost every program I have seen is a one-year program or a capstone program to a two-or three-year course in a single vocation. Do you have any data on two-year cooperative programs and their relevant effectiveness compared to the more usual one-year capstone-type cooperative programs? (Vocational and Technical Education ERIC Center)

Information sought from other sources:

14. I am interested in securing information relative to teaching vocational educators how to develop performance objectives. (Center for the Study of Evaluation)

15. I am very concerned with current evaluation techniques in education. With the present emphasis on accountability of education, we need to be aware of work that is being conducted nationally in this area. (State Department of Education and Association Referral Information Services)

16. The problem under consideration deals with the criteria to be utilized in program determination for vocational education activities in rural areas. I would appreciate your assistance in locating information on this problem. (State Research Coordinating Unit)

17. Are you aware of any research designed to identify and isolate groups of rural disadvantaged persons requiring vocational education? (State Research Coordinating Unit)

These statements of information needs were used by the resource persons to become familiar with the types of problem statements generated in vocational-technical education. In addition, the answers or lack of answers to these requests served to identify benefits and disadvantages faced in utilizing existing information systems.

Another preinstitute activity involved assigned readings. Resource persons and participants alike were requested to read selected documents in order that they might begin with a more uniform information base. These documents included the first and second "Annual Report of the National Advisory Council on Vocational Education;" a monograph entitled "The Changing Educational Needs of Rural People" by Dr. C. E. Bishop; a "Review and Synthesis of Research on Vocational Education in Rural Areas" by Dr. B. Eugene Griessman and Dr. Kenneth G. Densley; and selected portions of some of Dr. Havelock's recent writings.

III. INSTITUTE ACTIVITIES

Interaction and free communications among thy various participants was a major goal of the Institute. In this spirit, the week's activities began with a social hour to help establish a comradeship among participants.

The address by Institute Director Dr. Douglas Towne outlined the overall purposes and procedures. This was designed to orient the participants to objectives, summarize the types of materials to be presented and procedures to be followed, and allow participants feedback in any revision they might desire in the planned activities.

Following the opening comments, participants were divided into small groups to discuss their preinstitute experiences in utilizing information sources. They identified benefits and disadvantages they experienced in utilizing these various information services. The Institute interpreters and resource people observed these sessions so as to become familiar with the types of problems encountered by the occupational educators.

Following these sessions the presentations began with Dr. Williams dealing with simulation, Dr. Havelock beginning his presentation on the change process, and Dr. Kent presenting information science materials. After the initial presentations by each, there occurred the flexible interaction which had been intended. Each of these resource persons, as well as interpreters and participants, contributed more content and input through formal presentations and discussions. These content presentations were interspersed with simulation experiences which illustrated major points discussed. (The interpreters were used during the fourth day to describe various local, state, and national information systems with potential value to vocational educators.)

The third day marked the beginning of the work sessions in which participants were to simulate application of the entire model. These work sessions continued through the fourth day and were reported to the total group the morning of the fifth day.

A panel of reactors evaluated the models and illustrated shortcomings and strong points of each. These were shared with all participants to make their own judgments as to the relative merits.

At the conclusion of the Institute, each participant was asked to prepare a statement of intent indicating postinstitute activities which he intended to carry out. Each participant also completed the posttest evaluation forms.

Presentations

Following are summaries of presentations made by the three resource persons at the Institute. The major purpose of these presentations was the development of participant competencies. The purpose was not to prepare

a text for future use but rather to provide exposure upon which the participants could build. The summaries which follow are therefore abbreviated forms of the types of materials and information presented rather than extensive summaries. In addition, it must be kept in mind that the presentations were rather informal and highly interactive, and therefore a complete review of all content presented is impossible.

SOME FACTORS IN THE DESIGN OF SIMULATION LEARNING EXPERIENCES

By Clarence M. Williams, University of Rochester

Three distinct levels of learning experiences are suggested:

1. Real Experiences or REALEX

   An illustration would be the things a learner does when he is gathering data by interviewing in a depressed urban area hoping he may find answers to some pressing social problems.

2. Simulated Experiences or SIMEX

   These are things a learner does,for example, when he engages with other individuals trying to solve problems with data obtained from a mythical state or system and is, perhaps, best exemplified by the games approach of James Coleman and others.

3. Vicarious Experiences or VICEX

   The most common example would be reading about someone else's real experiences.

There also are combinations of these three. For example, a VIC-REALEX would be watching yourself on a video tape playback.

Simulation games are of interest for at least two reasons noted by James Coleman:

1. Because a game (simulation) is a kind of play upon life in general, it induces, in a restricted and well-defined context, the same kinds of motivations and behavior that occur in the broader contexts of life where we play for keeps.

2. There are apparently certain aspects of games that especially facilitate learning, such as their ability to focus attention, their abstraction of simple elements from the complex confusion of reality, and the intrinsic rewards they hold for mastery.

Richard Wing suggests that simulation has the following characteristics:

1. An object or a process is manifested.

2. The properties of the object or process are abstracted.

3. The abstracted properties of the object or process are combined into a model.

4. The model of the system (object or process) is manipulated for study.

These characteristics indicate the system under investigation is first analyzed and secondly synthesized in a convenient package for further application. The confusion is created by the assumption that the contents of the system are agreed upon.

It is often stated that the rules of a simulation are like the normative and legal constraints upon behavior in real life. Coleman lists the following rules for games (simulations):

1. Procedural rules describe how the game is put into play and the general order in which play proceeds.

2. Mediation rules specify how an impasse in play or a conflict of paths is resolved.

3. Behavior constraint rules correspond to the role obligations found in real life and specify what the player must do and what he cannot do.

4. Goal rules specify both what the goals are and how they are reached.

5. The environmental response rule specifies how the environment would behave if it were present as part of the game.

6. The police rule specifies the consequences to a player for breaking one of the game's rules.

There seem to be four major steps in the process of designing learning experiences:

1. Developing the logical characteristics of the situation. This involves six subtasks:

   a. Making assumptions about or defining the learners

   b. Developing operationally defined behaviors as outcomes

   c. Determining and describing which of the three grade levels (vicex, simex, or realex) is appropriate for the experience or a part of it

   d. Selecting appropriate engagement modes (sensory)

e. Devising definite and useful ways to provide feedback to the learner and to the instructor

f. Developing ways to analyze the feedback to guide the learner as he progresses through the experience and to provide ideas for possible revision of the learning experience

2. Producing the learning experience

3. Utilizing the learning experience

4. Analyzing the feedback

One final word by Sarane S. Boocock and E. O. Schild should serve to set the stage for the reader so that he can begin working on his own: "It is almost axiomatic that in order to design a good simulation of some social institution or process you need a pretty good understanding of the basic principles of its operation."

INFORMATION SYSTEMS
By Allen Kent, University of Pittsburgh

To develop an understanding of modern information systems, one must begin with a realization that access requirements have changed fundamentally. When materials containing information are not read as they are acquired, retrieval of the information cannot be based on recall. Instead, questions must specify the characteristics of a problem for relevant information to be identified.

Information systems which permit convenient responses to such questions have been called "coordinate" systems. The design of an information system must involve consideration of four factors.

1. Generation of information

   In considering the generation of information, one must consider the source, the type (analog, digital or non-numeric), the arrangement of information (arbitrary, semantic or syntactic), and how it is processed.

2. Input of information into the system

   a. Acquisition of information is the first element. The type of materials, the means of gathering it (individually written, electronically produced, or mechanically created), and selection policies must be considered.

   b. Analysis of the information is dependent upon such factors as the structure of the information, source material, type of classification and indexing, linguistic analysis, etc.

c. Vocabulary control is important, including the time of control, means, construction and testing.

d. Both the format of source material and the storage medium are important in recording the results of information analysis and search.

e. The method and purpose of storing source materials also is an important factor.

3. Output from the system

Of vital importance is the development of the question. The question must be analyzed and a search strategy developed. The search itself is dependent upon the type of hardware and software involved.

4. Utilization of results

Between output and utilization are such intermediate and transfer processes as selection, interpretation and evaluation.

A GUIDE TO INNOVATION IN EDUCATION
By Ronald G. Havelock, University of Michigan

Most people think of change in terms of specific projects in which they are involved. The projects have a defined beginning, ending, and sequential history.

The simplest explanation of change is that some internal or external stimulus leads to a response. A somewhat more detailed and more rational problem-solving model can be subdivided into four steps:

1. A decision to do something

2. An active attempt to define the problem

3. A search for potential solutions

4. An application of one or more potential solutions to see if it will satisfy the need

Everyone can learn to follow such a model, especially if he has some help from someone who might be called the "change agent."

Regardless of his formal job title or his position, there are three primary ways a person can act as a change agent.

1. The change agent can be a catalyst.

Most of the time most people do not want change; they want to keep things the way they are even when outsiders know that change is required. For that reason, some change agents are needed just to overcome this inertia, to prod and pressure the system to be less complacent, and to start working on its serious problems. In education today this role is often taken by students, concerned parents, or school board members. They do not necessarily have the answers, but they are dissatisfied with things the way they are. By making their dissatisfaction known and by upsetting the status quo, they energize the problem-solving process; they get things started.

2. The change agent can be a solution giver.

   Many people who want to bring about change have definite ideas about what the change should be; they have solutions, and they would like to have others adopt those solutions. However, being an effective solution giver involves more than simply having a solution. You have to know when and how to offer it, and you have to know enough about it to help the client adapt it to his needs.

3. The change agent can be a process helper.

   Probably the most important change agent role is that of helper in the processes of problem solving and innovating. Because most educators are not experts on the "how to" of change, they can be helped greatly by people who are skilled in the various stages of problem solving. The process helper can provide valuable assistance in showing the client how to:

   a. Recognize and define needs

   b. Diagnose problems and set objectives

   c. Acquire relevant resources

   d. Select or create solutions

   e. Adapt and install solutions

   f. Evaluate solutions to determine if they are satisfying his needs

The three primary roles of a change agent are not mutually exclusive. Some change agents can be catalysts, solution givers, and process helpers at the same time.

A change agent can be either an insider or an outsider. Sometimes outsiders see things more objectively, and they are usually more free to work in a variety of ways with different members of the client system.

However, insiders are more familiar with the system and feel its problems more deeply.

A change agent can work from above or below. It is much harder to work from below and to bring about change when you do not have formal power, but it can be done. Sometimes it helps for a change agent to be in a formal position of authority as leader or supervisor to bring about change in a group.

The change process can be segmented into six stages.

1. Building a relationship between the change agent and client
2. Diagnosing the problem
3. Acquiring relevant resources
4. Choosing the solution
5. Gaining acceptance
6. Stabilizing the innovation and generating self-renewal

The first task of the change agent is to establish contact and build a relationship with the people he wants to help. Once he has done so, he can begin working with them collaboratively in a step-by-step problem-solving process. It should be emphasized that the change agent is not the solution itself, but he aids the development in the client system of an ability to solve its own problems effectively on a continuing basis. This is called self-renewal.

Not every one of these stages is necessarily a part of every innovative process, nor will they always occur in this particular order. The different stages often occur simultaneously, and the final objective may be achieved by a process which does not follow a clear-cut developmental sequence.

SIMULATION ACTIVITIES

During the five-day Institute, several simulated activities took place in an attempt to illustrate and demonstrate the conceptual presentations. Two major types of such simulations occurred, with one type oriented to the change process and the other oriented to information retrieval and utilization.

Change Process Simulations

Various role playing situation were utilized to illustrate each of the stages presented in the Havelock materials and presentations. It was

found necessary to repeat such role playing in the area of problem identification and specification more often than in the other stages. This was due largely to the judgement that without valid clarification of the problem little of value would result from subsequent activities.

Role playing was also utilized to illustrate the other stages, such as "establishing relationships," and in the limited time available it was impossible to fully capitalize upon continuing and incremental role playing situations. It would have been desirable, for example, to role play one situation from beginning to end. Time, however, prohibited such extensive use of the simulation approach, and it was necessary to "jump" from one incomplete stage to another. Such restrictions clearly hindered reaping of the full benefits offered by such simulations.

Information Retrieval Simulations

Utilizing the expertise and resource of Dr. Allen Kent and the Knowledge Availability System, Mr. Robert Evans and the Center for Occupational Education, and Mr. David Altus of the CRESS-ERIC Clearinghouse, it was possible to demonstrate actual retrieval procedures. The first effort was directed by Dr. Kent and consisted of translating three problem statements into search logics consisting of both descriptors and Boolean logic relationships. These searches were developed with full participant involvement and illustrated most aspects of the content previously presented by Dr. Kent.

A mechanical breakdown in a teletype machine prohibited the anticipated immediate feedback from the three queries. This delay did not seem to detract from the demonstration, although it did keep the participants from fully appreciating the potential speed of information identification.

The search strategies constructed in these three situations were very selective in that only two relevant documents were contained within the ERIC system for one search with another identified for the second search and none for the third. Such results clearly illustrated many of the points presented by Kent in his discussions.

As an adjunct to the presentations and simulations relevant to information systems, several of the interpreters were asked to briefly summarize the services and procedures of selected information services. Those presented were:

OEA ARIS

Ohio Education Association
Association Referral Information Service

National Referral Center for Science
and Technology of the Library of Congress

The ASSIST Center

Activities to Stimulate/Support
Innovations in Schools Today

SRIS

School Research Information Service
Phi Delta Kappa

EPIC

The Educational Products Information
Exchange Institute

RISE

Research and Information Services
for Education

Clearinghouse for Federal Scientific and
Technical Information, U. S. Department of Commerce

Community Resources Project
Boulder, Colorado

Together these activities presented a fairly broad survey of systems, services, and procedures available in the field of information science. Though participant background varied a great deal, it was felt that each was introduced to at least one new system, service or procedure.

Total System Simulation

As a culminating activity, the participants selected three problems with which all elements of change and information utilization could be simulated. Each participant selected the group with which he would work. The groups were asked to simulate as broadly and realistically as possible an actual situation in which the change was to be introduced. They were not only asked to simulate as much as possible but were also invited to utilize live situations, e.g., actual information retrieval services. The results of these work groups is presented in the next section.

Summary

The activities which transpired during the four and one-half days of this Institute were designed to facilitate a high degree of interaction between participants and resource persons from the fields of educational change and information science. This aim was accomplished, but formal structure had to suffer. Hindsight seems to indicate that somewhat more structure might have been desirable, but it must be kept in mind that more structure would have hindered the interaction which did occur.

A great deal of content, much of it new to many participants, was presented during this short time. Though the content was presented in a variety of ways (from formal lecture to participant input), the major mode of instruction was group discussion with content presentation followed by participant feedback. Many participants, being more familiar with the lecture situation, felt somewhat uncomfortable in the less formal situations.

IV. RESULTS

As described in the introductory paragraphs of the section on Institute activities, the participants were divided into three groups to apply information from the resource presentations and simulation experiences in designing process models.

Following are summaries of these models.

PROCESS MODEL NO. 1

The concerns of Institute participants reflected the frequent demands for relevancy in education. Within this context, the following problem statement was developed:

> As demonstrated in the Washington studies, teachers of grades 6, 7 and 8 in rural middle schools do not relate instruction to the world of work.

In an effort to examine solutions to the problem stated above, the group employed Havelock's model for effecting educational change.

Building a Relationship

In a real situation this problem would encourage the involvement of numerous individuals who could be labeled change agents.

The group assumed that a superintendent of a rural school district had been informed that funds were available to initiate a pilot program designed to increase the relevancy of instruction in the middle grades to the world of work. With the maintenance of proper relationships in mind, the superintendent immediately informed the local board of education of the new funds available; he was granted the authority to pursue these funds. Continuing to maintain and build good working relationships, the superintendent met with local principals to assess their attitudes toward the problem relevancy. (In a similar vein, principals meet with members of their faculty to obtain input concerning the development of a program to combat the minimum linkages between students' school activities and the world of work.) As a result of the information obtained in these meetings, the superintendent appointed two groups: (1) an advisory group comprised of school personnel and individuals representing several lay groups (e.g., PTA members, industrialists) and (2) a three-person team to write the project in pursuit of funds.

Diagnosis

Proposal development and program planning required the local committee to move beyond a simple problem statement. They closely examined the

current situation both in the local area and in other locales where similar activities had occurred. The three-member proposal committee was viewed as a coordinating committee supported by other groups. An example of a support group was a teacher committee to study reports of similar research and development projects. The ERIC documents, research coordinating units, and agencies such as North Carolina's Research and Information Center were considered as sources of data about relevant programs.

Teacher study groups were expected to view the proposed program as an opportunity to effectively link formerly compartmentalized subject matter, teachers, students and the community. These linkages could be encouraged by using the implementation of a new program as a basis for planning inservice education.

Acquiring Relevant Resources

The following resources were identified for installation and maintenance of the program:

Diagnosis -- Resources identified which provided diagnostic data or an elaboration on the problem included: A Study to Identify Educational Needs of Non-College Bound Students in a Rural Public High School of Six Hundred Students (Washington Studies, ED 027394), Report of the Governor's Study Commission on the Public School System of North Carolina; A Review and Synthesis of Research on Vocational Education in Rural Areas.

Awareness -- Several team approaches and curriculum materials projects related to the problem under study were known (e.g., Project in Instructional Materials Development for Occupational Exploration in Grades 3-8, Atlanta Public Schools; Team Teaching - A Good Use of Human Resources to Enrich Instruction, AVJ, March 1966; an Experimental Junior High School Course in Occupational Opportunities and Labor Market Processes, Final Report, ED 022056).

Evaluation Before Trial -- The effectiveness of several programs concerned with the relevancy of education to the world of work were discussed. A phone call was made to the San Diego County Department of Education regarding their use of the "Life Career Game" in occupational exploration programs. Group members noted the results of a study by Hudak and Coit (ED 024767) to develop an evaluation of a junior high school vocational plan.

Resource for Trial -- Obviously, an important aspect of implementing a new program was the availability of resources. Funds appropriated through state legislatures and federal dollars for exemplary programs were identified as potential resources. Projects such as the Instructional Materials Project mentioned above were cited as sources for curriculum materials for innovative programs. Local representatives of business and industry were requested to assist in the development and implementation of a new program.

Evaluation After Trial -- Objective test data from measures of vocational maturity, indices of attitude changes, an evaluation of locally

developed curriculum materials, and a follow-up study of students were recommended as evaluation methods.

Installation and Maintenance -- State Department personnel, RCU staff members, project directors and local leaders should be capable of providing professional expertise and appropriate records necessary for the installation and maintenance (including alterations) of the proposed new program. The involvement of these groups is especially important in moving a program from the experimental context into the continuing operations of numerous school systems.

Possible Solutions

Three possible solutions, though viewed as entities, were recommended.

An inservice education program for teachers, especially those teaching academic subjects, was suggested. The components of such a program should include visits to vocational schools and local businesses and industries.

The local school should develop an occupational information center and establish a system which enables employees in various occupations to visit classes and discussion groups. The group also suggested that vocational guidance become an integrated part of the services available in the target population.

The employment of a specialist in vocational education was identified as another solution. This person should have primary responsibility for coordinating classroom observations by participating teachers on an exchange basis, for reviewing and developing curriculum materials, for coordinating the development of the occupational information center, and for assisting in the establishment of an interdisciplinary team of teachers.

Gaining Acceptance, Stabilization and Self-Renewal

Approximately 90 percent of the time was spent discussing the applicability of Stages I through IV. Therefore, insufficient time was left for indepth discussion of Stages V and VI.

PROCESS MODEL NO. 2

The following problem statement was developed:

What program changes should be made to better serve the occupational education needs of students in a small isolated rural school?

A hypothetical school was assumed in a predominantly rural area of about 2,000 people, located 40 miles from a city of 15,000 people. The community was primarily agricultural. Approximately 80 percent of the

graduates from the 175-enrollment high school left the community to find employment or attend college. About 20 percent attended college and 10 percent completed.

The present school occupational education offerings included a vocational agriculture program, home economics program, typing course, and an elementary bookkeeping course.

Building a Relationship

The superintendent, with concurrence of the board, initiated two actions:

1. A local citizens committee was established.

2. A letter was sent to the state director of vocational education requesting a vocational education survey. The state director agreed that the school would begin collecting economic and employment data for the county, school dropout figures, information on student job interests and labor market information.

The state director recommended that the assembled data should be reviewed with the:

1. School board

2. Local advisory committee

3. Local superintendent and staff

4. Other community representatives, such as president of the town council, local ministers, and the county agricultural agent.

Diagnosis

The superintendent asked the teachers of agriculture, home economics, and business, under the supervision of the high school principal and cooperatively with elected members of the advisory committee, to collect the information requested by the state vocational director. After the information was collected, the superintendent and board called a meeting of the advisory committee, the local high school faculty, and representatives of the state vocational director's office to review the findings and develop conclusions.

Major findings of the study were:

1. Graduates of the local high school were generally having difficulty moving effectively into the world of work, except for a small minority who entered their father's business. Many were shifting jobs frequently and were engaged in largely unskilled occupations.

2. The Community economic base was limited to the extent that only a minority of youth could be absorbed locally during the foreseeable future, including the agricultural sector.

3. Abnormally large outlays of new taxes would be necessary to provide a comprehensive and indepth occupational training program at the high school.

4. No reasonable possibility existed for transporting vocational education students to another school for vocational training.

5. Former students of the school did not have an adequate preparation for entering occupations at the time of their graduation.

6. Present students indicated a reasonably high degree of interest in receiving some kind of preparation for employment.

Conclusions of the meeting were:

1. The school needed to provide some kind of orientation to the world of work which existed, for the most part, outside the local community.

2. While budgetary constraints prevented a broad program of entry level training, it was recognized that some kind of an exploratory multi-occupational experience was desired to orient approximately 75 percent of the students to several major occupational areas.

Acquiring Relevant Resources

Diagnosis -- Initial interest for change originated with the board of education. While the need for change was evident from casual observation, a more adequate analysis was required to describe the nature and scope of the present situation and to provide a basis for prescribing and implementing suitable solutions. This diagnosis would provide information to assist with a more complete understanding of the local situation and some comparison with other communities with similar situations. Several resources were identified as appropriate for completing a diagnosis:

1. Population information from the U. S. Bureau of Census, Commerce Department and migration data from the Census Bureau.

2. Migration data from the Office of Business Economics and the Social Security Administration.

3. School census data from the State Department of Education.

4. Analysis and interpretation of demographic data by Montgomery-Bergman and Associates (business and economics consultants).

5. "Characteristics of American Youth," Technical Study No. 30, Department of Commerce.

6. "Expanding the Range of Occupational Needs in Rural America," ERIC ED 015 062.

7. "Remote High Schools - The Realities," Northwest Regional Educational Laboratory.

8. State Department of Vocational Education study of local student follow-up, training opportunities and student inventory.

Awareness -- A review of educational literature revealed several sources of information regarding possible solutions which had been tried in communities with a problem:

1. "High School for One," Northwest Regional Educational Laboratory.

2. "Inter-Disciplinary Occupational Program for Small Schools," Kansas.

3. "Expanding the Range of Occupational Needs in Rural America," ERIC ED 015 062.

4. "Remote High Schools - The Realities," Northwest Regional Educational Laboratory.

Evaluation Before Trial -- Several resources were selected as a basis for assessing the comparative worth of several alternative solutions:

1. "Education in Rural America for Vocational Competence," ERIC ED 02055.

2. "Factors Related to the Educational and Job Plans of Rural Youth," ERIC ED 011 800.

3. Oklahoma State Follow-up Study.

4. "The Development and Demonstration of a Coordinated and Integrated Program of Occupational Information, Selection and Preparation in Secondary Schools," ERIC ED 022 961.

5. "High School for One," A. Hoppes, Consultant

Resource for Trial -- To prepare for actual trial of selected innovations, the following resources were identified:

1. Federal guidelines for developing exemplary innovative programs

2. Experiences of university staff members in implementing similar innovations in other situations

3. Staff members and project consultants of Kansas inter-disciplinary project

4. Information from state research coordinating unit from other pilot schools

Evaluation After Trial -- Guidelines were developed for analyzing results of innovations. Most of the information would be generated from within the school system. Outside critiques of the program would be arranged in cooperation with selected consultants.

Installation -- The adoption of proposed innovations would require information on start-up costs, staffing and adjustments within the system to allow for effective application. This information would be assembled as the result of discussions with the board of education, the state vocational board, the local advisory committee, the local PTA, civic and service organizations, and studies of costs and staffing information of similar kinds of projects in comparable situations.

Maintenance -- Internalization of the proposed innovations would be facilitated by studying research reports and field studies relating to a long-term outlook regarding projected student demand, predicted funding requirements, physical facilities requirements and personnel requirements.

Choosing the Solution

The efforts to this point had involved a large number of persons, some who were representative of the school and community and others who were invited in from agencies and organizations external to the local situation. Numerous resources had been surveyed to accumulate the necessary information to arrive at an appropriate decision. At this stage, alternatives would be examined to select the most appropriate and effect a final decision. It was decided to appoint a faculty committee, chaired by the high school principal, to review the information, select suitable alternatives, and recommend a final solution or set of solutions. During the course of the committee's activities, occasional meetings were held with the superintendent, the school board president and the chairman of the local advisory committee to keep these persons and the groups they represented apprised of the committee's progress.

Three alternative plans of action were selected by the faculty committee:

1. Introduce summer school along with orientation in work experience.

2. Introduce a program of cooperative education.

3. Provide a program of broad occupational education.

These alternative solutions were feasibility tested through a consideration of such factors as benefit, practicality and diffusibility.

On the basis of comparative data and judgment, it was decided to introduce summer school along with some orientation in work experience. Four factors led to this decision:

1. The school curriculum could be expanded at a limited cost through a full-year use of facilities and utilization of community resources.

2. Local leaders would be receptive because of the likelihood of its success.

3. The early installation was possible because of relatively low additional costs to the local school system.

This recommendation was subsequently accepted by the school board with the endorsement of the local advisory committee.

Gaining Acceptance

Prior involvement had provided some awareness and understanding of the proposed program. The task of full installation required still further efforts toward an adequate acceptance by various groups and individuals. Some of the major activities directed toward this end were:

1. A complete plan for the curriculum changes was prepared by a faculty committee along with detailed recommendations for changes in organizational structure and an analysis of revised personnel needs.

2. A handbook was prepared to provide details about the new program to parents and students.

3. A workshop was conducted to orient faculty members to the new program. Workshop consultants included persons from the state staff in vocational education, teacher education personnel and local educators from other schools where similar changes had been made in the school program. These efforts led to a greater degree of confidence on the part of local faculty and fostered a situation where close cooperation of individuals was assured.

Stabilizing the Innovation

Much care had been taken to diagnose the situation and acquire the necessary resources for arriving at suitable alternatives. From these alternatives, a widely accepted solution was selected. Many persons tempered their acceptance with a wait-and-see attitude, however.

It was decided that the merits of the new program, which provided the necessary support for initial adoption, should be subjected to continuous testing on the basis of an objective analysis of program results.

The periodic assessment of program results was carried out for the most part by local school faculty. A consultant in educational evaluation was retained to assist with the development of the overall plan for program evaluation and its application.

As the new program was implemented, some observable results led to a continued and increased feeling of confidence on the part of students, parents and faculty. Further confirmation of the success of the new program, as well as an objective appraisal of its limitations, provided the necessary understanding for long-range acceptance on the part of the community.

PROCESS MODEL NO. 3

Vocational counseling for young people has generally been in short supply or nonexistent. Few vocationally trained counselors are being prepared in the United States at present, and regular counselor preparation often ignores or barely mentions the vocational aspects of counseling.

Within this context, the following problem statement was identified: The preparation of counselors at universities needs to be changed to encompass vocational aspects.

Establishing Relationships

To develop good professional and personal relations, emphasis was placed on relationships with the counseling and personnel people in the local college of education, the dean of the college of education, members of program and course committees of the college of education, state department of education personnel (particularly vocational education and teacher certification) and professional educators' associations.

Diagnosis

In diagnosing the problem, a thorough search was made of the literature. Particularly helpful were recent vocational counseling activities of the Department of Health, Education, and Welfare. The literature should make it possible to state the problem more clearly and also provide information on current training and certification requirements.

Acquisition

All resources must be brought to bear if change is to be made efficiently and effectively. Attention was directed first to ERIC and RIE abstracts. Subsequent sources were Ronald G. Havelock's bibliography on innovation, dissertation abstracts, Review of Educational Research, Education Index, Encyclopedia of Education Research, Phi Delta Kappa Abstracts, and the publications Arm and Aim. The group suggested that basic references such as Tiedeman and Oiwspow be consulted for background.

Acquisition of relevant information must not be limited to published materials. Perhaps a more important source would be personal "liaison" visits with counseling personnel, inservice teachers and teacher educators. Professional meetings and the existing change agents (in this case the RCU) must be included in the acquisition of information concerning the problem and tentative solutions.

Choosing the Solution

In addition to searching various information sources, the group also felt a "brainwashing" session would help identify possible solutions. The group systematically chose the target populations using the following lists:

1. The college
2. The public schools
3. The state department of education
4. Business and industry
5. Employment security people

The next logical step in the solution of the problem was to develop and identify possible approaches to each target population. Several tactics were suggested to effect change in college counselor educators:

1. Joint meetings between the faculties of vocational education and counseling
2. Joint graduate assistantships
3. Development of projects for the counseling department by vocational educators to get outside funding
4. Personal presentations to the dean of the college and the chairman of the counseling department
5. Advising graduate students in vocational courses to enroll in counseling classes, etc.

After the approaches to the target populations are identified, the most suitable course of action must be selected. Again, research, personal knowledge of involved individuals, and information gathered in the previous stages were needed. When this approach is tried, it must be evaluated. If feedback then indicates that the approach is unsatisfactory, another approach must be selected.

At this stage a trial or pilot exemplary program could be instituted (again as determined by relevant research). Results of the program must be diffused through professional publications, news media, professional meetings, etc.

Acceptance

Acceptance of a new program depends upon the diffusion of viable results of the experimental or exemplary program as determined by systematic evaluation. Two general ways of effecting acceptance are inservice and preservice education. The group decided to concentrate on preservice education. Relevant activities identified were:

1. Individuals in Counseling -- Change the undergraduate and graduate requirements of counselors to include mandatory vocational training.

2. Vocational Teacher Educators -- Suggest that vocationally trained people go into counseling, thus bringing vocational competency to this position.

3. State Board of Education - Vocational Education Division -- Write new certification requirements in their state plans, or stipulate a particular type of counselor availability in school districts before federal reimbursements are made.

4. Administrators -- Make state and local administrators aware of the concern of vocational educators about the lack of adequate vocational counseling, and encourage hiring only people with work experience or professional vocational counseling training.

Efforts to effect change through groups in preservice education were concentrated on university curriculum committees, state professional organizations (in this case counselors, vocational teachers and state education associations), state and local advisory councils, and perhaps, the state employment service. In each case, presentations and proposals should be made to the groups and their aid and support solicited.

Self-Renewal

If the program of developing more competent vocational counselors is to be successful, continuation must be ensured. Rewards for faculty participation might contribute to this. Rewards could be in the form of monetary return, professional advancement, public recognition, research funds or just positive reinforcement from their immediate superior.

If all steps have been followed conscientiously and evaluation takes place at each stage, routinization and structural integration will take place. The necessity to make adaptations in the solution and the program is concomitant with the effective use of continuing evaluation. A self-renewal capacity implies continuous diffusion, adoption and evaluation.

Statements of Intent

At the conclusion of the Institute, each participant was asked to write a short statement of some project or program he would seek to initiate

when he returned home.

Exerpts from statements of intent by the participants follow:

1. Devote a summer school program for the Board of Trustees entirely to the area of vocational-technical education.

2. Conduct a project with a university elementary education department on using the world of work as an organizing center for elementary education curricula.

3. Try an evaluation model which might serve as a prototype to be adapted and replicated for other vocational education projects in the state.

4. Try to develop a state conference on the principles and stages of planned change.

5. Use the Institute model to initiate, foster and complete a change process in schools which have been reluctant to initiate vocational programs.

6. Utilize the services of the many resources detailed at the Institute to assist vocational instructors at a regional occupational center to construct new curricula.

7. Select administrative and supervisory personnel from the state bureau of vocational education to participate in a workshop patterned after this Institute.

8. Develop a coordinated guidance program in a school district with proper emphasis on vocational guidance.

9. Reassess relationships with employers to determine if confrontation and useless effort can be avoided.

10. Utilize an information search for use by a committee developing guidelines for junior high level occupational orientation.

11. Apply change agent principles to the areas of manpower, occupational needs, vocational guidance and vocational awareness.

12. Encourage graduate students in teacher education to use more varied sources of information retrieval.

13. Provide assistance to superintendents in developing a plan for a vocational-technical high school.

14. Initiate a formalized inservice training program for employed vocational educators.

15. Make available various search services.

16. Develop a model for an interdisciplinary vocational education program for small isolated rural high schools.

17. Conduct a workshop for development of exemplary program proposals, relying on information retrieval relevant to the need for an exemplary program.

18. Consider computerized information retrieval versus hand search information retrieval for satellite information centers in the state.

19. Encourage a placement coordinator proposed for an area vocational-technical school to work with a committee of various government agencies and industries to place referrals on the job.

20. Make available more vocational information in rural areas.

21. Encourage exemplary programs to improve the curriculum in rural schools by aiming curriculum content toward making education more relevant to all students, to improve the vocational guidance function, and to utilize the latest innovations proven successful and based on research findings.

22. Sponsor an exploratory training workshop to acquaint local vocational directors with product packages which have been developed for use on the local level.

23. Encourage modification of local programs on the basis of evaluation of these programs.

24. Prepare and distribute materials related to the change process in instituting educational innovations.

25. Increase the use of search capabilities of the ERIC clearinghouse on small schools and rural education.

26. Give special attention to the educational and occupational aspects of guidance in a study of the nature and extent of vocational guidance in small schools in the state.

27. Encourage programs similar to this Institute. Planning assistance will be provided for persons and organizations wishing to initiate innovative programs.

28. Develop occupational educaton curricula in pilot schools in the state.

29. Expand searches on information related to helping teachers in middle grades relate instruction to the world of work.

30. Promote basic changes in undergraduate experiences in agricultural education in the state.

31. Evaluate and recommend changes in the school vocational education program.

The results of this workshop as illustrated in the three process models are quite rewarding to the director. Each of these three models incorporate critical elements which would not have been included if it weren't for the combination of workshop consultants input and the participants expertise.

The statements of intent, however, are somewhat disappointing. Whether this is due to a lack of time or desire to adequately describe their intentions or actually due to a lack of intent is hard to determine. Many of the statements are admirable but an observation of actual behavior would certainly be more meaningful.

V. EVALUATION

The evaluation of this institute as well as the other Rural Multiple Institutes was designed and implemented by the Center for Occupational Education.[1] The information to be presented and discussed here is only a part of the total evaluation of the Rural Multiple Institute project: Final Report of the National Inservice Training Multiple Institutes for Vocational and Related Personnel in Rural Areas. Each participant was requested to complete evaluation forms which included, but were not limited to, 24 items presented in the Likert format. The report evaluation herein is limited to these items.

The statement to which participants reacted were presented in both positive and negative terms. In coding their responses, values from 1 to 5 were assigned so that the higher the number the more positive, or less negative, was the response. In this manner strong disagreement with a negative statement and strong agreement with positive statements both received a value of 5. Such coding procedures result in means which are somewhat comparable despite the positive or negative nature of the various statements.

Each of the 24 items is presented below as it was responded to by the participants. Beneath each statement is given the number of participants (n) responding, the mean (M) response, and the standard deviation (SD). Also indicated is the frequency of responses (in parentheses) for each of the five response categories and a graphic presentation of this frequency. (The five response categories are listed in order from lowest value to highest value, i.e., the first category of a positive statement is SD, strongly disagree, which was assigned a value of one, whereas the first category of a negative statement is SA, strongly agree, also assigned a value of one.) The negative statements appear in solid caps. Rather than discussing the statements in the order in which they were presented, they are grouped according to the nature of participant responses. There appeared to be five categories of such responses, ranging from most positive to most negative. The cut-off points of these categories were not completely artibrary.

The most positive statements (5) had mean responses ranging from 4.36 to 4.03, and the most negative statements (2) had responses ranging from 2.61 to 2.80. The next group of positive statements (8) ranged from 3.97 to 3.58, while the next group of least positive (4) ranged from 3.00 to 3.25. The remaining group (5) ranged from 3.33 to 3.44. On the five-point scale utilized, only two statements, therefore, had mean responses below the theoretical mean of 3.00! The mean scores alone are not adequate for understanding the responses of these participants. The frequency distribution of responses is also presented to illustrate the division of

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[1]This evaluation is described in Appendix D, Page 52.

participants. The lack of homogeneity among participants is rather obvious in some of the responses presented below.

Group I (Statements with most positive response) - The statements presented below were given the most positive (or least negative in the case of negatively stated items) responses. There were five such statements.

5. I HAVE NOT LEARNED ANYTHING NEW.

N = 36 M = 4.36 SD = 0.68

Response	f	
Positive	(0)	
	(1)	*
Neutral	(1)	*
	(18)	******************
Negative	(16)	**********

15. I HAD NO OPPORTUNITY TO EXPRESS MY IDEAS.

N = 36 M = 4.11 SD = 0.52

Response	f	
Positive	(0)	
	(1)	*
Neutral	(0)	
	(29)	******************************
Negative	(6)	******

16. I really felt a part of this group.

N = 36 M = 4.11 SD = 0.52

Response	f	
Positive	(0)	
	(0)	
Neutral	(3)	***
	(26)	**************************
Negative	(7)	*******

10. The speakers really knew their subject.

N = 36 M = 4.06 SD = 0.83

Response	f	
Positive	(0)	
	(2)	**

Neutral	(5)	*****
	(18)	******************
Negative	(11)	**********

23. The printed materials that were provided were very helpful.

N = 36 M = 4.03 SD = 0.61

Response	f	
Positive	(0)	
	(1)	*
Neutral	(3)	***
	(26)	**************************
Negative	(6)	******

The responses to these five statements clearly indicate that the participants felt that our goal of presenting new knowledge in a highly interactive environment was indeed achieved. There was great agreement that new things were learned, that the speakers really knew their subject, and that the printed materials were very helpful. In addition, there was high agreement that the participants developed a comradery and had ample opportunity to express their ideas.

With the exception of statement ten, there were, at most, only four responses occurring in the neutral or negative categories to these statements. It would be most interesting to be able to check back and determine the characteristics of these few individuals who did not perceive these statements as did the greatest majority of the participants. This, however, is impossible since confidentiality of these responses was guaranteed.

Group II (Statements with high positive responses)

20. THE INFORMATION PRESENTED WAS TOO ADVANCED.

N = 36 M = 3.97 SD = 0.56

Response	f	
Positive	(0)	
	(1)	*
Neutral	(3)	***
	(28)	****************************
Negative	(4)	****

24. THE SCHEDULE SHOULD HAVE BEEN MORE FLEXIBLE.

N = 36 M = 3.97 SD = 0.91

Response	f	
Positive	(0)	
	(3)	***
Neutral	(6)	******
	(16)	**********
Negative	(11)	**********

6. The material presented seemed valuable to me.

N = 36 M = 3.94 SD = 0.75

Response	f	
Positive	(0)	
	(2)	**
Neutral	(5)	*****
	(22)	**********
Negative	(7)	*******

11. I was stimulated to think about the topics presented.

N = 36 M = 3.94 SD = 0.79

Response	f	
Positive	(0)	
	(3)	***
Neutral	(3)	***
	(23)	**********
Negative	(7)	*******

9. THE INFORAMTION PRESENTED WAS TOO ELEMENTARY.

N = 36 M = 3.78 SD = 0.90

Response	f	
Positive	(0)	
	(5)	*****
Neutral	(4)	****
	(21)	**********
Negative	(6)	******

14. THERE WAS LITTLE TIME FOR INFORMAL CONVERSATION.

N = 36 M = 3.75 SD = 1.00

Response	f	
Positive	(0)	
	(7)	*******
Neutral	(2)	**
	(20)	**********
Negative	(7)	*******

13. The group discussions were excellent.

N = 36 M = 3.64 SD = 0.93

Response	f	
Positive	(0)	
	(6)	******
Neutral	(6)	******
	(19)	**********
Negative	(5)	*****

21. THE CONTENT WAS NOT READILY APPLICABLE TO THE IMPORTANT PROBLEMS IN THIS AREA.

N = 36 M = 3.58 SD = 0.84

Response	f	
Positive	(0)	
	(5)	*****
Neutral	(8)	********
	(20)	**********
Negative	(3)	***

There are eight statements in the second group of most positive responses. The means range from 3.58 to 3.97. Statements 20 and 9 indicate that the material was perceived to be appropriate by the individuals involved, being neither too advanced nor too elementary. In addition, statement 21 indicates that the materials were quite relevant to the problems being faced by the participants, and statement 6 further supports this claim. Statements 24 and 14 indicate that there was ample opportunity for group and personal interaction and that the schedule was certainly not too tight. In addition, statements 11 and 13 add support to the claim that group discussions and materials presented stimulated the participants to discuss the subject at hand.

Group III (Statements with low positive responses)

8. POSSIBLE SOLUTIONS TO MY PROBLEMS WERE NOT CONSIDERED.

N = 36 M = 3.44 SD = 1.00

Response	f	
Positive	(1)	*
	(7)	*******
Neutral	(6)	******
	(19)	**********
Negative	(3)	***

7. I COULD HAVE LEARNED AS MUCH BY READING A BOOK.

N = 36 M = 3.39 SD = 1.02

Response	f	
Positive	(1)	*
	(9)	*********
Neutral	(3)	***
	(21)	**********
Negative	(2)	**

12. We worked together well as a group.

N = 36 M = 3.39 SD = 1.25

Response	f	
Positive	(4)	****
	(6)	******
Neutral	(3)	***
	(18)	**********
Negative	(5)	*****

2. THE OBJECTIVES OF THIS INSTITUTE WERE NOT REALISTIC.

N = 36 M = 3.36 SD = 0.90

Response	f	
Positive	(2)	**
	(4)	****
Neutral	(9)	*********
	(21)	**********
Negative	(0)	

4. THE OBJECTIVES OF THIS INSTITUTE WERE NOT THE SAME AS MY OBJECTIVES.

N = 36 M = 3.33 SD = 0.89

Response	f	
Positive	(1)	*
	(6)	******
Neutral	(10)	**********
	(18)	******************
Negative	(1)	*

In the third group are statements again reacted to in a positive manner, this time less positively than in the preceding two groups. This group had means ranging from 3.33 to 3.44.

Statements 8, 7 and 12 show a beginning of dissension among participants concerning how they perceived the workshop. There seems to be developing in these three statements a division among the participants. Statement 8, for example, has 14 responses in the neutral or positive category and 22 in the negative categories. Statement 8, in conjunction with statements 2 and 4, seems to indicate that there may have been a slight mismatch between participant and workshop objectives for orientation; however, it must be kept in mind, that, in general, these three statements regarding objectives were seen to be positive evaluations of the workshop, although to a lesser degree than some of the other positive indicators. Statement 7 has been responded to in a positive manner but less positive than the preceding statements regarding the nature of the content presented. Statement 12 shows a positive reaction to group interaction as did statements no. 15, 16 and 13.

Group IV (Statements with neutral responses)

3. The participants accepted the purposes of this institute.

N = 36 M = 3.25 SD = 1.08

Response	f	
Positive	(3)	***
	(7)	*******
Neutral	(5)	*****
	(20)	********************
Negative	(1)	*

17. My time was well spent.

N = 36 M = 3.25 SD = 1.20

Response	f	
Positive	(3)	***
	(8)	********
Neutral	(7)	*******
	(13)	**********
Negative	(5)	*****

1. The objectives of this institute were clear to me.

N = 36 M = 3.03 SD = 1.25

Response	f	
Positive	(6)	******
	(7)	*******
Neutral	(5)	*****
	(16)	**********
Negative	(2)	**

22. THEORY WAS NOT RELATED TO PRACTICE.

N = 36 M = 3.00 SD = 1.07

Response	f	
Positive	(3)	***
	(10)	**********
Neutral	(8)	********
	(14)	**********
Negative	(1)	*

In the fourth group of statements the range of responses was from 3.0, a neutral response, to 3.25, slightly more positive than neutral. These responses are labeled neutral responses even though they were slightly on the positive side of neutrality.

In all four statements in this group there seems to be a general ambivalence in the nature of their responses. There were very few extreme responses to any of the four statements. With this general ambivalence it is difficult to state conclusions which would have meaning, compared to the meaning implied by the more positive statements previously discussed or the more negative statements to follow.

Group V (Statements with negative response)

18. The institute met my expectations.

N = 35 M = 2.80 SD = 1.28

Response	f	
Positive	(6)	******
	(11)	**********
Neutral	(5)	*****
	(10)	**********
Negative	(3)	***

19. TOO MUCH TIME WAS DEVOTED TO TRIVIAL MATTERS.

N = 36 M = 2.61 SD = 1.29

Response	f	
Positive	(9)	*********
	(10)	**********
Neutral	(5)	*****
	(10)	**********
Negative	(2)	**

In group five are two statements which were responded to in a negative manner. The means of statements 18 and 19 both were below the 3.0 neutral mean. Statement 18 indicates that the participants may have come to the institute expecting something different from what they found. This, however, need not be considered a negative evaluation of the institute, especially in light of the positive reactions discussed earlier. Rather, it might be considered an indication that the content and procedure utilized were somewhat different than what they had anticipated. Statement 19 is also rather difficult to interpret in light of preceding responses. There definitely appears to be an indication that participants felt some time during the institute was was on "trival matters." Such wasted time, however, may be forgiven if the participants had such positive reactions on items such as "learning something new," "feeling a part of the group," and having "group discussions which were excellent."

In addition to the items discussed above, each participant was requested to write statements reflecting his opinions on various points of the institute. Having studied these responses, there appears to be no overriding unanimous response. There were, however, several responses which were heavily emotion-laden and, in some cases, quite personal. Rather than present these comments, let it suffice to say that they were generally positive, except where personality conflicts arose. The non-personal positive and negative responses were quite similar to the evaluation presented earlier.

VI. SUMMARY STATEMENT

The institute accomplished a great deal more than could reasonably be expected in light of time and financial constraints. The institute failed in many other ways, however.

The original intention of the director was to bring together experts from within vocational education with consultant experts in the areas of information science, educational change and simulation. This was accomplished. The director also intended to maximize interaction between these two groups. This was accomplished for the most part.

The director did not intend an "encounter" type environment, but such did occur in a minimal way. The encounter, though not anticipated, did illustrate vividly some of the difficulties one must expect in attempting to bring about change. This could, therefore, be considered an added benefit of the institute.

The director did not intend the institute to serve as an "idea-sharing" get-together for vocational educators. Some participants were, therefore, disappointed from this standpoint. The institute was, on the other hand, definitely intended to be a knowledge presenting and internalizing activity. It was that intent which created some difficulties, in that too much detail was presented in the view of a few participants. In general, however, most participants felt that this intent of learning was well achieved.

Another purpose of the institute was originally to develop various models for utilizing research and development in the improvement of practice. This purpose changed to the orientation of refining and applying one model (Havelock's) in three separate situations. Though this alteration disallowed a more diverse approach, it can be justified from several standpoints. Whether the decision was "right" is a matter of opinion.

In conclusion it is maintained that the institute achieved many desirable goals. It failed to achieve others. But then, what institute is much different in this respect?

APPENDIX A

Pre-Institute Information

TO: Participants in Institute V
FROM: Douglas C. Towne
SUBJECT: Pre-institute activities

I am very pleased with the response received regarding the intentions of most of our selected nominees to attend our institute to be held May 3-8 at the University of Pittsburgh -- better than 90% of those selected have indicated their definite plans to attend. Judging from the applications of those planning to attend, we are assured of a high quality workshop. I look forward to meeting each of you.

As indicated in our brochure, the objective of Institute V is to "bring together vocational education researchers and practitioners with information science researchers in order to develop and test models for the application of vocational education innovations resulting from research and development." I am sure that you can appreciate that this is a rather tall order to be accomplished in one week. I have met with our consultants (Kent, Havelock and Williams) twice since last summer in planning the activities we hope will facilitate accomplishment of this objective. In addition, the Steering Committee of the Rural Area Institutes have met several times to plan the coordinating aspects of these seven workshops. As a result of these deliberations, I feel it necessary to request your involvement in some pre-institute activities. The first two require your immediate attention.

1. Pre-registration - We have been most fortunate in obtaining the use of very fine facilities at the University of Pittsburgh. As you know, you will be reimbursed for full participation in this workshop for both the round-trip, tourist fare, tax-exempt air fare, and $75 for the week's expenses which will include meals, lodging, registration and miscellaneous expenses.

Since the workshop is of only one week's duration, we feel it is imperative to develop close working relationships among all participants, consultants included. Toward this end we would request your cooperation in the following manner:

a. To begin our session we would ask your attendance at a combination registration/social hour session scheduled from 7:00 p.m. to 10:00 p.m.
b. There will be a registration fee of $5 which will be reimbursed.

c. Lodging will be provided in the modern, air-conditioned Tower Dormitories (a spacious double room for each participant) conveniently adjacent to the Hillman Library wherein most institute activities will take place. The week's lodging in this facility will cost a mere $21.00.
d. Meals will be provided in the Tower Dormitory cafeteria at the nominal cost of $21.00 for the week.
e. These meals will be supplemented with two banquets to be held in the Webster Hall Hotel on Monday and Thursday evenings. The cost for these banquets will be $5.00 each.
f. Preceding the Thursday evening banquet will be another social hour.
g. We plan on adjourning at 1:30 p.m. Friday, May 8.

These administrative details are summarized below:

Registration, Sunday Evening (includes the cost of the two social hours)	$ 5.00
Lodging, Tower Dormitories	21.00
Meals, Tower Dormitories	21.00
Banquets, Monday & Thursday Evenings	10.00
TOTAL COST	$57.00

This will leave a grant total of $18.00 for your miscellaneous expenses, such as limousines to and from the airports. We will collect this money Sunday evening and will accept personal checks. I certainly hope these arrangements meet with your approval and would request that you return the enclosed registration form at your earliest convenience.

2. Pre-Institute Assignments - As part of all seven Rural Area Institutes, common background papers have been developed for distribution to all participants. These papers included the first and second "Annual Report of the National Advisory Council on Vocational Education"; a monograph entitled "The Changing Educational Needs of Rural People" by C. E. Bishop; a "Review and Synthesis of Research on Vocational Education in Rural Areas" by Dr. B. Eugene Griessman and Dr. Kenneth G. Densley; and selected portions of some of Dr. Havelock's recent writings. These may serve primarily as review for those of you acquainted with the subjects, whereas others will find them most helpful in developing a comprehensive background. All participants should be aware of the information contained within these papers prior to attendance at our institute. For your convenience they are being mailed to you under separate cover and, with the exception of Havelock's materials, need not be brought to Pittsburgh.

As part of our planning sessions we attempted to specify in greater detail the institute objective mentioned earlier. This resulted in eight

objectives which are applicable to the institute activities relating to the change process, information science and simulation, as well as to the models to be developed in the workshop part of the institute. These eight objectives are listed below.

As a result of institute activities the participants will:

1. Describe the needs of a specific client group.
2. List changes needed on the part of clients in improving their role performance.
3. Select sources of information with potential solutions.
4. Exploit, i.e., utilize, the information systems.
5. Interpret applicability of identified information resources.
6. Fabricate a solution to the stated needs.
7. Implement fabricated solution.
8. Stabilize innovation.

The models developed in this institute will:

1. Devise and state the strategy of need clarification.
2. Describe process of identifying needed changes.
3. Describe rationale for locating potential sources of solutions.
4. Describe relevant search strategies.
5. Describe method of evaluating information obtained.
6. Describe methods of solution fabrication and feedback.
7. Devise and describe methods of implementation.
8. Devise and describe methods of monitoring.

I am sure that you can see that we have established a rather strenuous and comprehensive set of objectives. We hope to accomplish these with three types of activities. The first two deal with the objectives at the left above, whereas the third involves the workshop activities to take place during the latter part of the week in developing and assessing models for information utilization in the educational change process.

It is suggested that each participant is presently capable of accomplishing the eight objectives listed at the left with varying degrees of success dependent upon his experience and training. Our consultants will provide additional inputs which hopefully will develop each participant's capability and sophistication. To aid in this effort we ask your cooperation in the following manner:

a. Based upon your professional role, study a specific client group and identify their needs.
b. Select one of these needs for change in improving their role performance (you yourself may be the "client").
c. Select a source of information which has potential for providing solutions.
d. Communicate with this information source (by letter) in an attempt to obtain information relevant to the problem.
e. Send a carbon of this letter to me so that I might share it with our consultants.

These five activities will enable each of our participants to assess the value and relevancy of various information sources. In addition the consultants will be able to direct their attention to your problems and your experiences in utilizing existing information sources. The focus of our first day's activities will be directed to your experiences in exploiting these information systems.

To assist you in this activity I have listed on an enclosed paper various sources you might utilize. Do not let this assignment be cumbersome or too time-consuming! All we ask is that you write a short letter to one or more of the listed sources (or any other you may feel is more appropriate) and request assistance in identifying information relevant to your problem. To be most effective this letter should be mailed as soon as possible! Any answer or other material you might obtain from this inquiry should be brought to the institute.

----- Please be sure to send a copy of the letter to me -----

In addition to this activity we request that you bring with you any materials which illustrate existing information systems with which you are acquainted and which contribute to the educational change process through facilitating the use of research and development materials. I am sure that many of our states have in operation fine systems which should be brought to the attention of others.

3. Reactions - Please feel free to communicate any suggestions you might have for improving our institute. We are most amenable to change, but you must also realize that I have not been able to convey in this brief note all our plans or rationale.

In summary, I request that you do the following:

1. Pre-register using the enclosed registration form.
2. Schedule your flight so that you arrive at the Pittsburgh, Pennsylvania, airport early Sunday evening, May 3, and leave Friday, p.m., May 8.
3. Be sure to obtain tax-exempt and tourist fare tickets.

4. Read and review, prior to the institute, the materials being sent to you under separate cover.
5. Prepare and send a letter requesting information relevant to a problem of concern to you.
6. Send a copy of this letter to me:

   Dr. Douglas C. Towne
   Room 213-C, Claxton Education Building
   University of Tennessee
   Knoxville, Tennessee 37916
7. Collect and bring with you any materials which you think would be relevant to the concerns of this institute.
8. Communicate with me in any way you feel would help our institute to accomplish its goals.

Again, let me thank each of you for accepting our invitation to participate in this institute. With the quality of our participants combined with the quality of our consultants, my expectations for this activity are indeed most positive.

APPENDIX B

Institute Schedule

Institute V is a workshop activity designed to full utilize all persons involved--both consultants and participants. As such, the planners felt it necessary to schedule events in a flexible manner so as to allow for alterations based upon our mutual experiences. The following schedule is therefore tentative and amenable to alterations with certain exceptions.

Meal Service at Tower Dorms

Breakfast	6:30 a to 8:30 a
Lunch	11:00 a to 1:00 a
Dinner	5:00 p to 7:00 p

Social Hours and Banquets

Sunday Social Hour	7:00 p to 10:00 p (third floor A.I.R. Building)
Monday Banquet	7:00 p Hotel Webster Hall
Thursday Social Hour	6:00 p to 7:00 p (third floor A.I.R. Building)
Thursday Banquet	7:15 p Hotel Webster Hall

Institute Sessions (Hillman Library, 2nd Floor)

Monday
- 8:30 a - Rural Area Institutes - Charlie Rogers
- Keynote and Review of Objectives - Doug Towne
- 10:00 a - Small group discussions of existing services
- 1:00 p - Simulation - Clarence Williams
- Group Interaction

Tuesday
- 8:30 a - Educational Change - Ron Havelock
- Information Science - Allen Kent
- 6:00 p - Resource Center

Wednesday
- 8:30 a - Continuation of Tuesday's topics
- 11:00 a - Workshop groups
- 6:30 p - Resource Center

Thursday
- 8:30 a - Workshop groups
- 5:00 p - Models developed by workshop groups to be given to secretaries for duplication
- 9:30 p - Consultants and Interpreters review models developed

Friday
8:30 a - Review and evaluation of models
11:00 a - Evaluation and future action
12:30 p - Departure
1:30 p - Consultants and interested persons to review institute and explore possible avenues of future cooperation

Institute Staff

Administration -

Douglas C. Towne, Director
Fanchon F. Funk Assistant Director
Charles Rogers, Rural Multiple Institute Director

Consultants -

Allen Kent, Information Science
Ronald Havelock, Educational Change
Clarence Williams, Simulation

Interpreters -

Dave Bjorkquist
Robert Evans
Roland Krogstad
George Pilant
Jay Smink
Everett Edington
John Klit
Robert Meisner
John Rodgers
Glenn Smith
John Stephens

A special expression of gratitude is extended to Mrs. Carolyn Miller of the University of Tennessee and to Mrs. Donna Williams, Administrative Assistant to Dr. Kent, University of Pittsburgh, for their invaluable assistance throughout this project.

Appreciation is also given to the Interpreters who volunteered to accept additional responsibilities in our workshop activities.

APPENDIX C

The Selection of Trainees

The participant mix to be included in each institute was specified in the publication of the Organization and Administrative Studies Branch, Division of Comprehensive and Vocational Education Research, Bureau of Research, Office of Education, U. S. Department of Health, Education, and Welfare, entitled Guidelines and Priorities for Short-Term Training Programs for Professional Personnel Development in Vocational and Technical Education, December, 1968. Thus, a major criterion for selection was that of achieving an appropriate mix of professional personnel from vocational and related fields at all governmental levels who were concerned with the problem area under consideration at each institute.

The procedures to be followed in selecting the participants are as follows:

1. A brochure was prepared by the director and associate directors of the project describing the multiple institutes program and the individual institutes. The brochure emphasized the content and desired outcomes for the institutes.

2. The brochures were mailed, together with institute application forms, to State Directors of Vocational Education, Directors of Research Coordinating Units, head teacher educators in vocational education, local directors of vocational education, and other persons and agencies that were included in the list of potential participants. These persons were requested to complete applications for institutes or to nominate persons for the institutes.

3. The application form provided information regarding: training; experience; interest in the institutes; preferences for institutes; a description of current job assignment which is relevant to the institute for which the applicant is applying; and a statement to the effect that the applicant will be willing to undertake a project, program, or service to implement the models developed in the institute.

4. The applications were evaluated on the basis of training, experience, potentiality for implementing the products of the institute, and commitment to implementation.

5. Final selection of participants was based on the evaluation of the applications, with special attention given to identifying a team of vocational education and related personnel who would participate in each of the institutes from the states that rank high in rural characteristics.

The selection procedures were conducted by multiple institutes director and associate directors, which resulted in providing each institute

director with a list of participants and alternates for his institute. Upon receipt of this list it became the responsibility of each director to invite the participants and to substitute appropriate alternates whenever necessary.

APPENDIX D

Evaluation

In addition to the evaluation reported here, the Center for Occupational Education at North Carolina State University has conducted a more extensive evaluation of the entire multiple institutes program which is contained in the National Inservice Training Multiple Institutes for Vocational and Related Personnel in Rural Areas Final Report.

The summary evaluation was designed to determine whether the objectives of the multiple institutes program were attained. The objectives of the program implied that the following behavioral changes would take place in participants of the institutes.

1. The institute participants should view themselves as more capable of bringing about change at the end of the program than they did at the beginning of the program.

2. The institute participants should have more positive attitudes toward vocational education in rural areas at the end of the program than they had at the beginning of the program.

3. At the end of the program the participants should view the institute as having met its stated objectives.

4. After the participants leave the institute they should use the information obtained in the institute to bring about changes within the communities and states represented at the institutes.

To assess the attainment of the first objective, Rotter's Internal-External scale was administered to measure the extent to which the participants feel that they have the ability or skill to determine the outcome of their efforts to bring about changes in vocational education in rural areas. The instrument was administered at the beginning of each institute and again at the end of the institutes to measure changes in participants' perception of their ability to bring about changes in vocational education in rural areas.

To measure the attainment of the second objective, an attitude scale was constructed to measure general attitudes toward vocational education in rural areas. The attitude scale, Attitude Toward Vocational Education in Rural Areas, was tried out on a representative sample of participants to establish its reliability. The instrument was administered at the beginning and again at the end of the institute to measure changes in the participants' general attitudes toward vocational education in rural areas.

To measure the attainment of the third objective the Formative Evaluation Measure was administered at the end of each of the institutes. The Formative Evaluation Measure provided a measure of the participants' evaluation of the program. The instrument included such items as the extent to which the objectives of the institute were clear and realistic, the extent to which the participants accepted the purposes of the institute, whether the participants felt that solutions to their problems were considered, whether the participants were stimulated to talk about the topics presented, etc.

To measure the attainment of the fourth objective, follow-up interviews were conducted with a sample of participants in 40 states, using a partially structured interview guide which has been used by the principal investigator in the evaluation of other conferences and institutes. The interview guides were structured to ascertain the extent to which the participants have implemented the project, program or service which they planned during the institutes.

In addition, the State Directors for Vocational Education in the 40 states were interviewed, using a specially prepared interview guide, to assess their perceptions of the impact of the institutes on changes in the vocational education program in rural areas. The interviews with State Directors will be directed primarily toward the assessment of the efficacy of the strategies for effecting changes which are to be developed as part of the project.

APPENDIX E

Information Sources

Listed below are six services which may serve as sources of information relevant to problems faced by educators. A letter to any of them will result in some reply which may or may not be helpful. Merely state the problem for which information is needed, being as precise as possible. In addition to those listed are several other sources which you may feel would be more appropriate--feel free to use such alternatives.

1. ERIC (Educational Resources Information Center)

ERIC Clearinghouses are a network of information or documentation centers for a national information system designed to serve education by making available reliable, current educational research and research-related materials. Each of the clearinghouses focuses on a specific field of education.

The addresses of all the ERIC Clearinghouses are listed below. The change agent and his clients may seek assistance through their local clearinghouse or through one whose area of special interest coincides with the particular problem area of the client system.

ADULT EDUCATION
Syracuse University
107 Roney Lane
Syracuse, New York 13210

COUNSELING AND PERSONNEL SERVICES
611 Church Street
Ann Arbor, Michigan 48104

DISADVANTAGED
Yeshiva University
55 Fifth Avenue
New York, New York 10003

EARLY CHILDHOOD EDUCATION
University of Illinois
805 West Pennsylvania Avenue
Urbana, Illinois 61801

EDUCATIONAL ADMINISTRATION
University of Oregon
Eugene, Oregon 97403

EDUCATIONAL FACILITIES
University of Wisconsin
606 State Street
Madison, Wisconsin 53703

EDUCATIONAL MEDIA AND TECHNOLOGY
Institute for Communication Research
Stanford University
Stanford, California 94305

EXCEPTIONAL CHILDREN
1201 Sixteenth Street, N.W.
Washington, D. C. 20036

HIGHER EDUCATION
George Washington University
Washington, D. C. 20006

JUNIOR COLLEGES
University of California
at Los Angeles
405 Hilgard Avenue
Los Angeles, California 90024

LIBRARY AND INFORMATION SCIENCES
University of Minnesota
2122 Riverside Avenue
Minneapolis, Minnesota 55404

LINGUISTICS
Center for Applied Linguistics
1717 Massachusetts Avenue, N.W.
Washington, D. C. 20036

READING
Indiana University
204 Pine Hall
Bloomington, Indiana 47401

RURAL EDUCATION AND SMALL SCHOOLS
Box AP, University Park Branch
New Mexico State University
Las Cruces, New Mexico 88001

SCIENCE EDUCATION
Ohio State University
1460 West Lane Avenue
Columbus, Ohio 43221

TEACHER EDUCATION
1201 Sixteenth Street, N.W.
Washington, D. C. 20036

TEACHING OF ENGLISH
National Council of Teachers
of English
508 South Sixth Street
Champaign, Illinois 61820

TEACHING OF FOREIGN LANGUAGES
Modern Language Association
of America
62 Fifth Avenue
New York, New York 10011

VOCATIONAL AND TECHNICAL
EDUCATION
Ohio State University
980 Kinnear Road
Columbus, Ohio 43212

2. EPIE (Educational Products Information Exchange)

EPIE is a non-profit professional cooperative that conducts impartial studies of educational products. Each monthly newsletter, the EPIE Product Report, reviews a single educational "product" (e.g., black and white TV receivers, secondary social studies materials, school guidance programs). Subscription to this publication, something on the order of a Consumers Report, is quite expensive; but copies of relevance to a particular innovation under consideration might be located through ERIC. Subscription information may be obtained by writing:

EPIE Institute
386 Park Avenue, South
New York, New York 10016

3. RIS (Regional Information System)

RIS is a model for a regional information linkage system. It is intended to be a "one-stop" tool providing current awarenesses and reference services for all of the Michigan-Ohio Regional Educational Lab projects. MOREL, which for the present time is not being funded, was originally set up to determine the regional needs as expressed by local public school educators, college and university personnel, state departments of education, research organizations and people from the business community. To service such needs, RIS is now taking over these functions and extending them.

Printed materials are made available through its Referral Library which contains indices, directories, bibliographies, documents, abstracts, materials on specialized information systems and current periodicals and publications of the Research and Development Centers and the Regional Educational Laboratories. The Resource Bank, an added feature of this system, provides information about people and programs in different areas of education. RIS is in operation in three locations and under three different names:

(1) MOREL's Information Center
3750 Woodward Avenue
Detroit, Michigan 48201

(2) Association Referral Information Service (ARIS)
is part of the Ohio Education Association
225 East Broad Street
Columbus, Ohio 43215

(3) Activities to Support and Stimulate Innovation in Schools Today (ASSIST)
Director, Dr. S. Mangione
Wayne County Intermediate School District Assist Center
33030 Van Buren Road
Wayne, Michigan 48184

4. SRIS (School Research Information Service)

SRIS is an information service sponsored by Phi Delta Kappa to serve its members and any other interested educators or educational institutions. Its primary aim is to diffuse information developed by schools in their research and innovative projects. Through the volunteer efforts of members of Phi Delta Kappa, SRIS retrieves research reports and descriptions of innovative activities from school systems and school study councils. These are indexed and abstracted, using ERIC procedures, and are available on microfiche (25¢/fiche) or regular size (10¢/page + postage). SRIS cooperates with ERIC to minimize duplication of efforts, and it will include with the material sent in response to requests a list of relevant ERIC material.

School Research Information Service
Phi Delta Kappa Research Service Center
Eighth and Union Streets
Bloomington, Indiana 47401

Director: Dr. William J. Gephart

5. National Referral Center for Science and Technology

The National Referral Center for Science and Technology may be described most simply as the "information desk" of the scientific and technical community. Operating in the Library of Congress with the support of

the National Science Foundation, the Center is designed to provide a single place to which anyone with an interest in science and technology may turn for advice on where and how to obtain information on specific topics.

The Center does not provide technical details in answer to inquiries, nor does it furnish bibliographic assistance. Functioning as an intermediary, it directs those who have a question concerning a particular subject to organizations or individuals with specialized knowledge of that subject.

The Center is concerned with all fields of science and technology: the physical, biological, social, and engineering sciences, and the many technical areas relating to them. Similarly, it is concerned with all kinds of information resources, wherever they may exist: in government, in industry, and in the academic and professional world.

Referral service is available without charge to any organization or individual working in any field of the physical, biological, social, and engineering sciences. No special forms are required, but the following information will enable the Center to make its replies more effective:

Precise Statement of the Information Desired.
A request submitted in clear, precise terms will make it possible to select the most specifically pertinent resources. Referral service is speeded up if each request is limited to a single topic.

Statement of Information Resources Already Contacted.
To avoid being referred to resources already known to him, the inquirer should tell the Center what resources he is already familiar with.

Statement of Special Qualifications.
Participation in a government contract, affiliation with a recognized research project, or membership in a professional society sometimes entitles an inquirer to use resources otherwise not open to him. Any such qualifications should be indicated.

Referral requests may be made by calling area code 202, 967-8265, by writing to the Library of Congress, National Referral Center for Science and Technology, Washington, D. C. 20540, or by visiting the Center on the fifth floor of the Library of Congress Annex, Second Street and Independence Avenue, SE.

6. State Research Coordinating Units

Most of the states have Research Coordinating Units (RCU) serving vocational-technical education. The RCU often serves as a most helpful source of information. The location of the RCU in your state can be obtained from a Vo-Tech State Supervisor or Teacher Educator.

APPENDIX F

List of Participants

Miss Florence G. Bailey
Business Education Service
State Department of Education
Richmond, Virginia 23216

Mr. William H. Bergman
Business Research Bureau
School of Business
University of South Dakota
Vermillion, South Dakota 57069

Dr. David C. Bjorkquist
103 Industrial Education
University of Missouri
Columbia, Missouri 65201

Mr. Edwin Crawford
Rob Building
Room 5122
Washington, D. C.

Dr. David M. Dennis
Western New Mexico University
Box 1284
Silver City, New Mexico 88061

Mr. Fred W. Eberle
1717 Quarrier Street
Charleston, West Virginia 25311

Dr. David Altus
Box 3 AP
New Mexico State University
Las Cruces, New Mexico 88001

Mr. Robert C. Evans
Center for Occupational Education
North Carolina State University
Raleigh, North Carolina 27607

Mr. Paul J. Foster
Room 207 State Service Building
Denver, Colorado 80203

Miss Fanchon F. Funk
Room 213 C
Claxton Education Building
Knoxville, Tennessee 37916

Miss Barbara M. Gutheil
State Education Department
State Office Building
Montpelier, Vermont 05602

Mr. Robert E. Hancock
P.O. Box 811
Tallahassee, Florida 32301
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